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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/705,730	11/10/2003	Syed Sajid Ahmad	2269-5558I US (99-0253.00)	5033
24247	7590	05/17/2006	EXAMINER RAO, G NAGESH	
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DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/705,730

Applicant(s)

AHMAD ET AL.

Examiner

G. Nagesh Rao

Art Unit

1722

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 23-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 and 23-28 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Election/Restrictions

- 1) Applicant's election without traverse of claims 1-16 in the reply filed on 3/3/06 is acknowledged.

Claim Objections

- 2) Claims 24-28 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The claims above are directed to the method implementation of claim 23 and do not positively limit the structure of the claimed invention. Examiner is unsure whether the method claims are meant to limit the function of the apparatus as intended by the operator, because that would read as a recitation of intended use and bear no weight to the structural limitation of the device being sought for patenting.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A

nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

3) Claims 1-16 and 23-28 are provisionally rejected on the ground of nonstatutory double patenting over claims 1-33 of copending Application No. 10/705,250. This is a provisional double patenting rejection since the conflicting claims have not yet been patented.

The subject matter claimed in the instant application is fully disclosed in the referenced copending application and would be covered by any patent granted on that copending application since the referenced copending application and the instant application are claiming common subject matter, as follows: Both applications and sets of claims pertain to essentially a programmable material

consolidation system comprising at least one fabrication site, if not a plurality of fabrication sites having at least one common component shared amongst the more than one of the plurality of fabrication sites.

Furthermore, there is no apparent reason why applicant would be prevented from presenting claims corresponding to those of the instant application in the other copending application. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4) Claims 1-3 rejected under 35 U.S.C. 102(e) as being anticipated by Bradbury (US PG Pub 2002/0007294).

Bradbury 294 pertains to a rapid customizing system for design and remotely manufacturing devices via a computer system. Upon re-review of applicant's current set of claims, examiner understand that the claim is broad to be

read upon the idea of a programmable material consolidation system comprised of a central programming computer network to read on a plurality of fabrication sites and wherein the at least one common component would be the communication channel set forth to communicate the information to one another, as well locate and direct the information put forth (See Abstract and Col 1 Section 0007).

5) Claims 1-4, 7-8, and 12-15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Pat. No. 3,889,355 to Aronsatein.

Aronsatein 355 teaches a programmable material consolidation system (Col. 16, lines 1-68), comprising: at least one fabrication site for fabricating one or more objects using a programmed material consolidation process (Col. 26, lines 14-19; Col. 6, lines 3-49; Col. 11, lines 10-44); and a substrate handling system configured to introduce one or more substrates into the at least one fabrication site and remove the one or more substrates from the fabrication site (Col. 26, lines 14-36).

Aronsatein 355 furthermore teaches the programmable material consolidation system, wherein the substrate handling system comprises a rotary feed system (Col. 9, lines 1-14), and wherein the substrate handling system comprises a linear feed system (Col. 26, lines 14-36). As well at least one

fabrication site comprises a plurality of fabrication sites (Col. 26, lines 14-36), and capable of being configured to introduce the one or more substrates into each of the plurality of fabrication sites (Col. 26, lines 14-36).

Aronsatein 355 also teaches a device further comprising: a cleaning component for cleaning the one or more substrates (Col. 8, lines 65-68). As well Aronsatein 355 teaches a substrate handling system that is configured to transport the one or more substrates having at least one feature fabricated thereon from the at least one fabrication site to the cleaning component (Col. 8, lines 65-68), and wherein the at least one fabrication site comprises a plurality of fabrication sites (Col. 11, lines 59-68; Col. 18, lines 61-68), and wherein the substrate handling system is configured to transport substrates from each of the plurality of fabrication sites to the cleaning component (Col. 11, lines 59-68).

Aronsatein 355 teaches the programmable material consolidation system of further comprising: at least one processing element for controlling operation of the substrate handling system (Col. 24, lines 17-41).

Aronsatein 355 finally teaches the programmable material consolidation system wherein the at least one processing element is configured to orchestrate movement of substrates from the plurality of fabrication sites to the cleaning component (Col. 24, lines 17-41).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
 2. Ascertaining the differences between the prior art and the claims at issue.
 3. Resolving the level of ordinary skill in the pertinent art.
 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
- 6) Claims 1-5, 7-8, and 10-16 rejected under 35 U.S.C. 103(a) as being unpatentable by Grigg (US Patent No. 6,337,122) in view of Tischler (US PG Publication 2003/0114016).

Grigg 122 pertains to an apparatus for three-dimensional fabrication with photo-curable resins indicating its capability of being used in a stereolithographic

manner, wherein it is taught a programmed material consolidation system comprised of a plurality of fabricated layers and at least one common component useful with more than one of the plurality of fabricated layers (Col 5 Lines 65-68 and Col 6 Lines 1-10 See Figure 10 Element 14 and Col 7 Lines 20-30)), wherein the material consolidation system comprises a location control element which is capable of being configured to direct consolidating energy to a selected fabrication site (96, Col 9 Lines 8-15). Furthermore the location control element is comprised of a plurality of galvanometers and a mirror (94 Col 9 Lines 8-15), a linear system aiding in the platform that operates as the substrate handling system wherein it is capable of being configured to transport at least one substrate and a cleaning component in the form of a recoater blade (102) which is employed to level the surface and thickness of material deposited onto the susbtrate or platform (90) (See Abstract, Figure 9 Col 8 Lines 55-68, Col 9 Lines 1-9 and Col 10 Lines 18-32).

However Grigg 122 fails to teach a plurality of fabrication sites within the apparatus to work on multiple substrates.

In a process tool apparatus, Tischler 016 pertains to a carrier tool configured to work on a plurality of fabrication sites (See Fig 3 Element 60), where the susceptor 60 has in its top surface (62) three recesses (66,68, and 70) sized to

accommodate a wafer carrier as a site means capable for fabricating three dimensional objects on the site (See Sections 0067-0073).

It would have been obvious at the time of the invention to one with ordinary skill in the art to modify the teachings of Grigg 122 with that of Tischler 016 in order to take advantage of the multiple fabrication sites in order to optimize more work area space for rapid production and prototyping.

7) Claims 6, 9, 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grigg (US Patent No. 6,337,122) in view of Tischler (US PG Publication 2003/0114016) in further view of Yamamoto (US Patent No. 5,151,813).

From the aforementioned the hypothetical device taught by Grigg 122 and Tischler 016 pertains to an apparatus for rapid prototyping of three-dimensional fabrication over a plurality of fabrication sites.

However Grigg 122 lacks the specified teaching of incorporating a plurality of mirrors or a rotary feed system for handling the substrate.

Yamamoto 813 pertains to an apparatus for producing three-dimensional objects, whereby it is taught to use a rotary feed system (14') in conjunction with a plurality of mirrors (16 and 16') in order to allow for a rotational means of the photocurable resin to be exposed to the laser reflected off the plurality of galvano

mirrors onto the material enabling a more thorough UV exposure for the photocurable resin (See Col 5 Lines 35-50 and Col 6 Lines 13-41).

It would have been obvious at the time of the invention to one with ordinary skill in the art to modify the teachings of Grigg 122 and Tischler 016 with that of Yamamoto 813 in order to enable more thorough and optimal processing conditions for the photocurable materials.

8) Claims 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 4,027,246 to Caccoma in view of U.S. Pat. No. 3,889,355 to Aronsatein.

Caccoma 246 teaches a programmed material consolidation method for fabricating objects (Col. 8, lines 25-34), comprising: selecting at least one first substrate; introducing the at least one first substrate into a first fabrication site with a substrate handling system associated therewith; selecting at least one second substrate; and introducing the at least one second substrate into a second fabrication site with the substrate handling system (See Abstract).

Caccoma 246 teaches the method introducing the at least one second substrate is effected while one or more objects are being fabricated on the at least one first substrate (Col. 11, lines 51-55), as well further comprising: selecting at

least one third substrate; and introducing the at least one third substrate into a third fabrication site with the substrate handling system (Col. 11, lines 62- Col. 12, line 4). Also taught by Caccoma 246 is the introducing the at least one third substrate is effected while one or more objects are being fabricated on both the at least one first substrate and the at least one second substrate (Col. 11, lines 51-55), removing the at least one first substrate from the first fabrication site with the substrate handling system while one or more objects are being fabricated on the at least one second substrate (Col. 11, lines 51-55).

Caccoma 246 teaches all the limitations set forth above, and Caccoma 246 clearly cross references the semiconductor wafer processing sectors of Aronsatein 355 several times, for example, in column 7, lines 13-15 and column 8, lines 25-34. However, Caccoma 246 fails to clearly teach that semiconductor wafer processing sectors of Aronsatein 355 fabricate at least a portion of at least one object by a programmed material consolidation process. The examiner respectfully submits that the claims, as such, do not even require that the portion of the object fabricated, the object, or the fabricating be related to any substrates selected or introduced.

Caccoma 246 teaches all the limitations set forth above, however, fails to clearly teach transporting the a substrate to a cleaning component with the

substrate handling system following removing of the substrate. Caccoma 246 teaches all the limitations set forth above, however, fails to clearly teach introducing another substrate into a fabrication site with the substrate handling system following removing of a substrate. Also Caccoma 246 teaches all the limitations set forth above, however, fails to clearly teach removing a substrate from a fabrication site with the substrate handling system while an object is being fabricated on both the substrate and another substrate.

However, the Aronsatein 355 reference that is cross referenced by the Caccoma 246 reference and shares a common assignee with Caccoma 246, teaches analogous art, wherein the same semiconductor wafer processing sectors referenced by Caccoma 246 fabricate at least a portion of at least one object by a programmed material consolidation process (Col. 26, lines 14-19; Col. 6, lines 3-49; Col. 11, lines 10-44). As well Aronsatein 355 teaches transporting the a substrate to a cleaning component with the substrate handling system following removing of the substrate (Col. 8, lines 65-68); referring to back to Aronsatein 355 teaches introducing another substrate into a fabrication site with the substrate handling system following removing of a substrate (Col. 24, lines 17-41); and referring back to Aronsatein 355 also teaches removing a substrate from a

fabrication site with the substrate handling system while an object is being fabricated on other substrates (Col. 9, lines 14-49; Col. 10, lines 35-45).

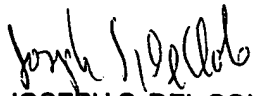
Therefore, it would have been obvious to one of ordinary skill in the art at the time that the invention was made to modify the teachings of Caccoma 246 with the teachings of Aronsatein 355, who's patent is cross referenced several times in Caccoma 246. One of ordinary skill in the art would have been motivated to combine these references because Aronsatein 355 teaches a complete manufacturing system capable of fast turn-around, maximized yield and low in-process inventory with interdependent minimization of processing cycle time and maximization of completed part yield (Col. 1, lines 4-19). Furthermore, Aronsatein 355 clearly teaches "parts of the photolithographic operations are distributed throughout the line in a manner designed to maximize yield and minimize control complexity" (Col. 6, lines 46-49). Further still, Aronsatein 355 clearly teaches "Each of the sectors is also envisioned to be under suitable control, either by general purpose computer or a hard-wired system, to specify and maintain process parameters, and to maintain proper flow of work-pieces for the sector." (Col. 3, lines 42-47).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to G. Nagesh Rao whose telephone number is (571) 272-2946. The examiner can normally be reached on 9AM-5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yogendra Gupta can be reached on (571)272-1316. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GNR


JOSEPH S. DEL SOLE
PRIMARY EXAMINER
5/15/06